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**ENVIRONMENT, SAFETY AND HEALTH
PERFORMANCE OBJECTIVES
AND
CRITERIA**



**OFFICE OF ENVIRONMENT, SAFETY
AND HEALTH EVALUATIONS**

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INTRODUCTION

This document contains Environment, Safety and Health Performance Objectives and Criteria (POCs) designed to assist in the evaluation of DOE Safety Management Systems. This document was initially issued in February 1995, and is intended as a tool to be used by the Office of Oversight (EH-2) in the planning and conduct of ES&H oversight activities. It does not establish ES&H requirements, but rather organizes and summarizes existing policy, standards, requirements, and guidance in a more user-friendly manner for oversight purposes.

While these POCs were developed as an internal tool for use by the Office of Oversight, they have utility for line organizations as well in that they promote an understanding by the line of the framework used by the Office of Oversight in conducting safety management evaluations, special studies, short-notice reviews, and surveillance.

The POCs are organized to facilitate their use in conducting broad evaluations of safety management systems. It is organized around the "Safety Management Template" (see figure 1) and the Department's three guiding principles for safety:

Line managers are responsible and accountable for safety;

Comprehensive requirements exist, are appropriate, and are effectively implemented; and

Competence exists commensurate with responsibility.

POCs derive from a distillation of the full range of requirements and good management practices applicable to a particular Criterion (e.g., Clear Safety Policies) and encompass the key programmatic concerns. As they are not overly prescriptive, line management has reasonable flexibility in adapting programs and processes to the facility's unique mission, hazards, and life stage. For each Criterion, a discrete number of concisely stated performance objectives are listed. Listed directly below the performance objective is a set of criteria by which that objective is to be evaluated. Preceding each set of POCs is a short description of the scope of the technical program or system and a listing of requirements governing its development and implementation, including regulations, DOE Orders, and industry standards.

The POCs are a necessary tool for focusing the attention of oversight personnel on the key programmatic concerns in their assigned areas. They do not reflect the detailed requirements subject to review during the appraisal process. For consistent, effective evaluations they must be supplemented by guides to appraisal methodology, by the knowledge and understanding of oversight personnel in the areas of ES&H programs and systems, and the regulatory instruments to which they are subject.

Finally, POCs are not amenable to yes or no answers. The mere existence of formal programs is insufficient to satisfy a performance objective. Also, it cannot be concluded that a criteria has been satisfied simply because it is addressed in the program documentation. Rather, it is necessary that inspectors evaluate whether the required programs and systems have been fully developed through both program documents and operating practices, and whether the programs and systems implemented achieve the desired performance levels.

DEFINITIONS

This section provides the meaning intended for the terms and statements used in the Performance Objectives and Criteria. The definitions may be more inclusive or more specific than those found in other DOE documents, but are designed to be consistent.

Attributes The short discussion and list of bulleted items directly following the Management Criterion title which provide detail about the criterion. The Attributes precede and correspond to the Performance Objectives under each Criterion.

Compliance-Based Oriented towards evaluating strict conformance with specific regulations or other requirements.

Criteria A measurable characteristic that helps determine if a particular performance objective is achieved.

Criterion - See "Management Criterion."

Data Collection The process of obtaining information through interviews and document reviews and inspections/observations. Data collection may be part of a performance test.

Guiding Principles The basis for establishing a Safety Management Program is to fulfill the Department's mandate under the Atomic Energy Act to protect the public, the environment, and workers. These are: 1) line management responsibility for safety, 2) comprehensive requirements, 3) competence commensurate with responsibilities, 4) independent oversight, and 5) enforcement. The first three principles comprise the basis for ES&H, and Safeguards and Securities inspections and surveillances. Reference 1994 Report to Congress under Amendment 2171 to the National Defense Authorization Act.

Implementing Programs The broad grouping of Technical Topical Areas (Facility Safety, Nuclear Safety, Environmental Protection, and Worker Safety) which reflect a facility's technical ES&H related operations and the management system components appropriate to conduct such ES&H activities within individual technical programs such as Industrial Hygiene or Waste Management.

Line Organization The unbroken chain of command which extends from the Secretary through the Under Secretary, to the Cognizant Secretarial Officials (CSOs), to the field organization managers, and to the contractors.

Line Management DOE and contractor personnel that are contractually or organizationally responsible for the work or job tasks. DOE policy is that line management is responsible for effective ES&H performance within their programs.

Management Criterion A component which further characterizes a specific Guiding Principle within the Management Systems Topical Area. There are 4 management related Management Criterion under each of the 3 Guiding Principles for a total of 12 distinct criterion (e.g., Defined Responsibilities and Authorities under the Guiding Principle Line Management Programs under the Guiding Principle -Comprehensive Requirements, and Training Programs under the Guiding Principle Competence Commensurate with Responsibilities). Within the Management Systems Topical Area, the term "Management Criterion" replaces the phrase "Functional Area" found in earlier versions of the POC document. The term "Management

Criterion" is not used in the Topical Areas under the Implementing Programs. Further, "Management Criterion" should not be confused with the term "criteria" discussed above.

Management Systems The infrastructure that plans, organizes, implements, and controls how performance goals and policies are defined and achieved.

Management Systems Topical Area An aggregation of 12 Management Criterion that are oriented toward ES&H management systems, include those management systems components that are important to establishing and maintaining effective ES&H programs, and pertain broadly to multiple Technical Functional Areas. The 3 areas within the management topical area are the guiding principles: 1) line management responsibility for safety, 2) comprehensive requirements, and 3) competence commensurate with responsibilities.

Performance-Based Concentrate on activities that impact facility reliability and safety. Emphasis is increased on actual observation of ongoing facility work activities and reduced document and program reviews. The inspections begin with performance-based observations, and then let discrepancies or uncertainties lead to inspection of other areas, such as quality verification organization effectiveness, training adequacy, and procedural controls. This inspection approach departs from past practices that emphasized documentation and program review.

Performance Indicator Operational information which is indicative of the performance or condition of a facility, group of facilities, or site. Performance indicators should be linked to a goal or a standard.

Performance Measure A method for collecting data necessary to determine implementation of a predefined performance goal or standard. Such methods include interviews, document reviews, and observation and testing.

Performance Objective A concise statement summarizing the performance expectations within a particular Management Criterion (within the Management Systems Topical Area).

Performance Test Measurements or other evaluations that provide information to determine conformance to a reference standard.

Programmatic Approach A method of assessment that focusses on the structure and effectiveness of programs. The programmatic approach evaluates management systems and their ability to ensure continuous improvement and ES&H excellence, rather than strict compliance with requirements.

Validation The process of verifying the accuracy of information obtained from performance measures.

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1.0 PERFORMANCE OBJECTIVES AND CRITERIA

SAFETY MANAGEMENT SYSTEMS

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Principle 1: Line managers are responsible and accountable for safety.

Criterion 1-1: Clear Safety Policies and Goals

Line management implements effective safety policy and goals that reflect Department policies and industry standards and assures a safety culture that permeates every level of the organization.

- There is a system to establish and maintain ES&H policies that define goals consistent with Departmental and industry policies and standards.
- There is a formal process to establish ES&H performance targets and objectives throughout the organization that includes the periodic review and adjustment to achieve policy goals.
- Senior management policies and practices demonstrate a strong commitment to a safe and high quality operation and emphasize safe work practices.

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1.1.1 Policy Development

Performance Objective:

There is a system to establish and maintain ES&H policies that define goals consistent with Departmental and industry policies and standards.

Criteria:

- a. Responsibilities and authorities for developing, issuing, monitoring, and revising ES&H policies have been clearly defined.
- b. The system provides appropriate opportunities for affected parties (e.g., operations management) to have input into the development of policies prior to implementation.
- c. Formal ES&H policy statements have been issued from a high enough level of authority within the organization to communicate their importance and assure effective implementation.
- d. ES&H policies commit to meeting regulatory and other requirements to which the organization subscribes as a minimum level of performance.
- e. ES&H policies are appropriate to the nature, scale, and ES&H impacts of the organization's activities, products, or services.
- f. ES&H policies include a commitment to continual improvement and prevention of pollution.
- g. ES&H policies provide the framework for setting and reviewing more specific ES&H objectives and targets.
- h. ES&H policies are widely distributed, easily accessible, and understood throughout the organization. Employees (senior and line managers as well as "shop floor" personnel) have a clear understanding and actively support ES&H policies that may affect their work.
- i. ES&H policies are regularly reviewed and revised to reflect changing requirements and current program goals and objectives.

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1.1.2 ES&H Objectives and Targets

Performance Objective:

There is a formal process to establish objectives and targets for ES&H performance throughout the organization that includes the periodic review and adjustment of the objectives and targets.

Criteria:

- a. Responsibilities and authorities for developing, monitoring, and revising ES&H objectives and targets have been clearly defined.
- b. The system provides appropriate opportunities for affected parties (e.g., senior management, operations management) to have input into the development of objectives and targets prior to implementation.
- c. Specific, documented ES&H objectives and targets have been set for an appropriate range of organizational entities (e.g., major operations, facilities, functions).
- d. The objectives and targets set are consistent with overall ES&H policies and address the organization's significant ES&H issues (e.g., compliance performance, high profile issues for regulators and the public).
- e. ES&H objectives and targets allow for measuring group as well as individual performance and are built into operational and strategic plans as well as individual performance appraisal processes for key managers.
- f. ES&H objectives and targets are integrated into the organization's performance measurement systems to allow for meaningful analysis and reporting of progress towards achieving these objectives.
- g. Senior management has communicated their support of ES&H objectives and targets to assure effective implementation.
- h. ES&H objectives and targets are widely communicated and understood throughout the organization. Employees have a clear understanding and actively support ES&H objectives and targets that may affect their work.
- i. ES&H objectives and targets are regularly reviewed and revised to reflect changing requirements and policy goals.

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1.1.3 ES&H Commitment

Performance Objective:

Management policies and practices demonstrate a strong commitment to a safe and high quality operation and emphasize safe work practices.

Criteria:

- a. Management clearly communicates its commitment to a safe and high quality operation through the issuance of formal statements and policies that explicitly state ES&H goals and expectations.
- b. Senior managers are actively and visibly involved in championing ES&H excellence and managing ES&H performance.
- c. Senior managers are briefed regularly on the status of existing and emerging ES&H issues applicable to their organization. (BMP)

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Criterion 1-2: Defined Responsibilities and Authorities

An organizational structure is established that clearly delineates roles, responsibilities, authorities, and accountabilities for developing and implementing ES&H policy. Communications and reporting systems are in place to ensure timely and accurate transfer of ES&H information in a manner that provides adequate protection to worker safety and health, the public, and the environment.

- The ES&H management function is characterized by clear and well-documented lines of authority and responsibility within ES&H and line organizations. ES&H roles, responsibilities, and accountabilities are communicated and understood by all personnel whose activities may impact ES&H performance.
- Line managers have the authority to make and implement decisions regarding ES&H that are commensurate with their responsibilities.
- Clear mechanisms exist for adjudicating disputes between line managers where discrepancies are believed to exist between work goals and ES&H management needs.
- Formal and informal channels of communication are in place to effectively communicate ES&H information within the organization and to external stakeholders such as regulatory agencies, public interest groups, and the local community.

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1.2.1 Organizational Structure

Performance Objective:

The ES&H management function is characterized by clear and well-documented lines of authority and responsibility within the ES&H organization and the line organizations. Managers with ES&H responsibility have sufficient organizational stature, independence, and authority to effectively implement ES&H programs and make ES&H decisions.

Criteria:

- a. Departmental missions, responsibilities, and authorities related to ES&H management are clearly defined, documented, communicated, and understood. (DOE 5480.1B, 5400.1, DOE N 1321.141, BMP)
- b. Reporting and other relationships within the ES&H management function, and between this function and line management, are clearly defined, documented, communicated, understood, and effectively integrated into the overall organizational structure within DOE, between DOE and the contractor, and among all contractors on the site. (DOE 5480.1B, 5400.1, DOE N 1321.141, BMP)
- c. Organizations independent of line management have the responsibility for policy and standards development and oversight, as well as the authority and management support necessary to implement that responsibility. ES&H managers are positioned high enough in the organization and have sufficient organizational stature, independence, and authority to effectively implement ES&H programs and make ES&H decisions. (DOE 5480.1B, BMP)
- d. The administration of DOE support contractors and M&O contractors' subcontractors ensures that all ES&H goals and objectives are met and key decisions on ES&H issues are made by DOE and the M&O contractor. (DOE 5480.1B, BMP)
- e. The effectiveness of the organizational structure is periodically reviewed and revisions are made when warranted. (BMP)

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1.2.2 Roles, Responsibilities, and Accountabilities

Performance Objective:

ES&H roles, responsibilities, and accountabilities are clearly defined, documented, communicated, and understood by all personnel whose activities may impact ES&H performance.

Criteria:

- a. ES&H roles, responsibilities, and accountabilities (including stop-work authority) are clearly defined, documented, and consistent with the FAR Manual. (DOE 5480.1B, 5400.1, DOE N 1321.141, FAR)
- b. Personnel understand their ES&H roles, responsibilities, and accountabilities. (DOE N 1321.141)
- c. Required ES&H functions have been identified and formally assigned to appropriate organizations and personnel. (DOE 5400.1, DOE N 1321.141, BMP)
- d. Individuals throughout the organization recognize the environmental, safety, and health aspects of their job responsibilities, and they take personal responsibility for, and demonstrate a sense of "ownership" of, these activities. (DOE 5480.1B, BMP)
- e. Line managers have a basic understanding and appreciation of ES&H requirements relevant to the operations for which they are responsible. (BMP)
- f. Line managers have implemented a system to ensure that operations under their cognizance comply with ES&H requirements. (DOE 5480.1B, BMP)
- g. Line managers ensure that roles, responsibilities, and accountabilities for ES&H issues within their facilities are clearly defined and communicated to employees in these facilities who are not directly accountable to the line manager (i.e., not matrixed to the line) or are not affiliated with the line (e.g., visitors, employees from other line organizations). (BMP)
- h. Managers effectively supervise individuals with responsibilities for activities having ES&H implications. (BMP)
- i. Management requires routine reporting regarding ES&H performance and the status of ES&H initiatives.

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1.2.3 Dispute Resolution

Performance Objective:

Mechanisms are established throughout the line organization for adjudicating disputes between line managers where discrepancies exist between work goals and ES&H management needs. (BMP)

Criteria:

- a. An informal dispute resolution period is established wherein the proper parties meet as many times as necessary to discuss and attempt resolution of the dispute.
- b. If an informal agreement cannot be reached the dispute is elevated to higher management authority for resolution.
- c. Compensatory actions, such as work stoppage, are considered when the dispute involves inadequate or defective work.
- d. Resolution of disputes is timely based on the potential of adverse effects on human health or the environment.
- e. Final resolution of disputed is made by appropriate levels of management and disputing parties are notified in a timely manner of the resolution..

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1.2.4 External Communication

Performance Objective:

A program is in place for communicating with external parties such as regulatory agencies, public interest groups, and the local community to provide them with information and the opportunity to be involved in key ES&H decisions.

Criteria:

- a. The organization has identified appropriate external parties, defined who will be the internal points of contact with these parties, and identified the points of contact within these parties. (BMP)
- b. The ES&H concerns of external parties are solicited and addressed. Both the concerns and responses are documented. (BMP)
- c. Formal communication of ES&H risks and programs occurs frequently, is timely, and effectively reaches external organizations, including regulatory agencies, public interest groups, and representatives of the local community. (DOE 5400.1, BMP)
- d. Cooperation is established between DOE organizations and external stakeholders on policy formation, planning, and resolution of safety issues. (BMP)
- e. The organization has a good working relationship and cooperates fully and openly with external oversight organizations. (BMP)
- f. The organization periodically assesses the effectiveness of external communications, makes changes as necessary, and documents the results of the evaluations and changes made. (BMP)

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1.2.5 Internal Communication

Performance Objective:

Formal and informal channels of communication are in place to effectively communicate ES&H information throughout the organization (top-down, bottom-up, and lateral).

Criteria:

- a. Management clearly communicates its commitment to a safe and high quality operation through the issuance of formal statements and policies that explicitly state ES&H goals and expectations. (DOE 5480.1B, 5400.1, BMP)
- b. Formal communication of ES&H policies and directives is timely and effectively reaches all responsible elements of the organization. (DOE 5484.1, BMP)
- c. Systems are in place to report ES&H information to higher levels of management on both a routine and as-needed basis. (DOE 5000.3B, BMP)
- d. Mechanisms exist to effectively share ES&H information (including problems, solutions, "lessons learned", and data) across organizational and functional boundaries. (BMP)
- e. ES&H issues and performance are a regular item on management committee agendas.
- f. ES&H awareness is reinforced throughout the organization via the use of newsletters, bulletin boards, videotapes, office-wide programs, or other means. (BMP)
- g. The effectiveness of communication is demonstrated by a widespread awareness and acceptance of the organizational commitment to ES&H excellence. (BMP)

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Criterion 1-3: Project and Resources Management Systems

Decision makers at appropriate levels of the organization obtain and deploy adequate resources to address both ES&H risks and PSO program plans and proposals for the design, construction, operation, modification, and decommissioning of DOE facilities. Management information systems are established to ensure formal processes are in place to manage and control documents and records important to ES&H.

- A formal ES&H planning and budgeting prioritization process is in place that implements ES&H policy, analyzes and addresses ES&H hazards, and mitigates those hazards through the appropriate allocation of funds.
- ES&H issues are properly addressed through a formal ES&H planning and budgeting process fully integrated in the site's strategic and institutional plans and in the long-term plans and budgets of the DOE Area Office and CSOs.
- Commitment of funds for capital, operating, and maintenance projects and programs is sufficient to attain the organization's ES&H policy and risk reduction goals.
- Formal processes are in place to manage and control documents and records important to ES&H.

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1.3.1 ES&H Planning and Budgeting Process

Performance Objective:

ES&H planning and budgeting are fully integrated in the site's strategic and institutional plans and in the long-term plans and budgets of the DOE Area Office and CSOs.

Criteria:

- a. ES&H planning and budgeting is conducted in accordance with the ES&H Management Plan Guidance Manual.
- b. ES&H protection is an integral part of the budget and planning process for all organizations and functions (e.g., R&D, operations) across the site. (DOE 5480.1B, BMP)
- c. The site's long-term plans and budgets are integrated with, and support the long-term plans and budgets of, the appropriate DOE Area Office and the CSO. (DOE 5400.1, BMP)
- d. The DOE Area Office and the CSO support the site's identified ES&H funding priorities, and the funding levels are appropriate for the level of ES&H risk. (DOE 5480.1B, 5100.4, BMP)
- e. Large ES&H projects (e.g., construction, remediation) adhere to DOE 4700.1, Project Management System with respect to planning, budgeting, and the reporting of progress. The project management system is integrated in the site's formal planning and budgeting system. (DOE 4700.1, BMP)
- f. The ES&H planning and budgeting process is fully integrated in the other major sitewide planning activities such as the Institutional Plan (DOE 5000.1B), Site Development Plan (DOE 4320.1B), and the planning and preparedness for operational emergencies (DOE 5500.3A). (DOE 5480.1B, DOE 5400.1, BMP)
- g. Individuals responsible for ES&H plans and budgets are formally trained and have a working understanding of the organization's planning and budgeting process for both direct and indirect funds. (BMP)
- h. Specific ES&H plans required by DOE Orders (e.g., DOE 5820.2A, Waste Management Plan) are integrated in key strategic and operational plans. (DOE 5480.1B, BMP)

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1.3.2 ES&H Planning and Budgeting Prioritization

Performance Objective:

A formal ES&H planning and budgeting prioritization process is in place that implements ES&H policy, addresses identified ES&H risks, and mitigates those risks through the appropriate allocation of funds.

Criteria:

- a. ES&H is integrated into the planning and budgeting process as the site establishes priorities, weighs competing factors, etc. (DOE 5480.1B, 5100.4, 5400.1, BMP)
- b. The prioritization system is formalized and includes methods for evaluating and ranking ES&H tasks according to risks (probability and magnitude of impact), commitments, and requirements. (DOE 5480.1B, 5100.4, BMP)
- c. Personnel proposing and prioritizing tasks have received training or other guidance to ensure consistent application of the prioritization system. (BMP)
- d. Contractor senior management review priorities and revise them as appropriate. (BMP)
- e. DOE Area Office and the CSO participate in the prioritization process, ensuring that the site's priorities are included among, and evaluated equally with, the priorities of other sites across the DOE complex. (DOE 5480.1B, 5100.1, BMP)
- f. EH-1 provides an independent prioritization of ES&H corrective actions and upgrade projects to the CSO in accordance with DOE 5480.1B. (DOE 5480.1B, BMP)
- g. The prioritization system is structured to ensure that rankings and reviews by appropriate personnel are accomplished in a timely manner. (BMP)

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1.3.3 Funding

Performance Objective:

Funds for capital, operating, and maintenance projects and programs are allocated and spent in accordance with the organization's ES&H policy and risk reduction goals.

Criteria:

- a. The organization (site and DOE) effectively allocate funds to address the ES&H priorities. This includes the assignment of full-time employees as justified by ES&H needs and priorities. (DOE 5480.1B, 5100.4, 5400.1, BMP)
- b. ES&H has received consideration comparable to that of other missions of the site (e.g., research) in the prioritization and allocation of overhead funds by the site. (BMP)
- c. Individuals responsible for ES&H plans and budgets are formally trained and understand DOE funding mechanisms and procedures that may impact their efforts. (BMP)
- d. The CSOs have a process for resolving funding conflicts to ensure that ES&H excellence is promoted. (BMP)

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1.3.4 Documents and Records

Performance Objective:

Formal processes are in place to manage and control documents and records.

Criteria:

- a. A formal process has been established and implemented for controlling the preparation, review, approval, issuance, use, and revision of documents important to ES&H.
- b. Revisions to controlled documents are reviewed and approved by the organization that originally reviewed and approved the documents, unless an alternative organization is formally designated based upon technical competency or capability.
- c. Controlled documents are distributed to, and used by, personnel performing work.
- d. A formal process ensures that sufficient records are specified, prepared, reviewed, approved, and maintained to accurately reflect completed work, and that provisions are included for their retention, protection, preservation, traceability, accountability, and retrievability.
- e. Records that require special processing and control, such as computer codes, information on high-density media or optical disks, and hardware and software required to access and maintain records, are controlled to ensure that they are useable.
- f. Record-holding facilities are provided for the storage of inactive records and there are appropriate staff for maintaining active records.
- g. Current versions of procedures, manuals, and reference materials such as drawings, vendor manuals, and data sheets are readily available, technically accurate, and clearly identified.
- h. Key regulatory record keeping and reporting requirements (e.g., permit renewals, report submissions, required training) are tracked and the appropriate compliance records (e.g., inspection logs, source and/or ambient measurement data) are maintained.

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Criterion 1-4: Line Management Accountability for Performance

Line managers are accountable for ES&H performance. Performance is explicitly tracked and measured, and inadequate performance has visible and meaningful consequences. Line managers execute actions to attain and continuously improve the safety of their operations.

- A program of ES&H performance appraisal has been established throughout the line organization that has as its objectives determining that ES&H policies and requirements are appropriately interpreted and implemented; evaluating the effectiveness of ES&H requirements and their implementation; and providing management with information on ES&H performance.
- Findings resulting from reviews, monitoring activities, and audits are resolved in a timely manner.
- DOE and DOE contractor line management have implemented a root cause analysis program to ensure that the underlying reasons for ES&H deficiencies are identified and addressed, and a lessons learned program to ensure that those deficiencies are not repeated.
- A program is in place to identify, measure, trend, and report ES&H performance indicators to provide early identification of potential ES&H and operational problems or changing ES&H conditions.
- A formal process is established by DOE to evaluate the performance of the site contractor with respect to contractual ES&H requirements for the purpose of determining compliance with the contract and any award fee or other incentive. This process is an adjunct to the formal ES&H oversight and appraisal program.
- A formal system is in place to investigate, report, and monitor trends in ES&H incidents and occurrences.

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1.4.1 Line Management Review: Organizational Performance

Performance Objective:

Line management has developed and implemented effective systems to evaluate and ensure the achievement of organizational site ES&H goals and objectives.

Criteria:

- a. A formal written program has been implemented to provide line management review of the site contractor's ES&H activities and performance. (DOE 5480.1B(8)(d)(6))
- b. The review program integrates specific DOE requirements for ES&H appraisals, self-assessments, and contract evaluation. (DOE 5480.19, DOE 5480.1B, DOE 5482.1B, DOE/EH-0326(EM.7))
- c. Line management efforts to provide ES&H guidance are coordinated to eliminate conflicts or redundancy in the case of multi-program review of the same or overlapping operations. (DOE 5482.1B(10)(c))
- d. Management information systems are in place to ensure that line managers are adequately informed of the current status of ES&H compliance. (DOE/EH-0326(EM.4)(IV))
- e. A formal system is in place to ensure that the appropriate level of line management evaluates and formally approves the ES&H impacts of any proposed changes to site operations. (DOE/EH-0326(EM.8)(II)(D), DOE 5482.1B(10)(k))
- f. Formal mechanisms exist for the timely approval of ES&H status and planning documents by line management. (BMP)
- g. Selection of suppliers is based on evaluation of their past performance and on their ability to supply materials and services.
- h. In the selection of contractors, the ability of offerors to meet ES&H requirements is ensured. Contractual documents appropriately incorporate ES&H requirements, reviews, and priority. (DOE 5480.1B(8)(d)(3))
- i. Review results are documented in formal reports and are effectively communicated to appropriate personnel in a timely manner. (DOE/EH-0326(EM.5)(I)(A) and (EM.7)(II)(A))
- j. Personnel with review responsibilities are knowledgeable regarding the ES&H status of their facilities and conduct regular and documented inspections of facilities under their jurisdiction. (DOE/EH-0326(EM.4)(III), (EM.6)(I)(B), DOE 5480.19)

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- k. Management and staff cooperate fully and openly with internal and external review groups.
(DOE/EH-0326(EM.2)(III)(D))
- l. Top line management clearly communicates its commitment to the review process through the issuance of formal statements and policies that explicitly state review goals and expectations.
(DOE/EH-0326(EM.2)(I)(A), DOE 5482.1B(10)(a))

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1.4.2 Line Management Review: Individual Performance

Performance Objective:

Line management has developed and implemented effective systems to evaluate and ensure the achievement of individual site ES&H goals and objectives.

Criteria:

- a. Roles, responsibilities, and accountabilities for review are well defined in program plans or other documents, clearly communicated, and understood by all personnel whose activities may impact management review. (DOE/EH-0326(EM.1)(II)(A), DOE 5482.1B(10)(c))
- b. Personnel responsible for ES&H activities are held accountable for their performance and the performance of those they manage. (DOE 5480.1B, 5480.19, BMP)
- c. Performance standards used in the performance appraisal process include the environmental, safety, and health aspects of individual job responsibilities. (BMP)
- d. There is a system to ensure that ES&H performance appraisal standards are consistently applied. (DOE 3430.3A, BMP)

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1.4.3 ES&H Appraisal Program

Performance Objective:

A program of ES&H performance appraisal has been established throughout the line organization that has as its objectives determining that ES&H policies and requirements are appropriately interpreted and implemented; evaluating the effectiveness of ES&H requirements and their implementation; and providing management with information on ES&H performance.

Criteria:

- a. Functional appraisals of specific issues are conducted to reduce the organization's long-term ES&H liabilities. (DOE/EH-0326(EM.7)(I)(D))
- b. The frequency of appraisals is consistent with the program's goals and inherent risks. (DOE/EH-0326(EM.7)(I)(C), DOE 5428.1B(9))
- c. Responsible organizations have implemented an ongoing formal written plan and schedule for performing required ES&H reviews. (DOE 5482.1B)
- d. ES&H reviews are conducted using formal written guidance documents with the criteria and performance measures necessary to ensure appropriate depth and continuity. (DOE 5482.1B(9)(a)(2), (b)(2), and (c)(2))
- e. Formal review procedures include provisions for the reviewed organization to respond to review findings after assessing their factual accuracy, and there is a mechanism for resolving differences in the interpretation of requirements. (BMP)
- f. ES&H reviews are documented in formal reports that are distributed to the reviewed organization and appropriate management in a timely manner. (DOE 5483.1B(9)(a)(4))
- g. The ES&H review process provides the reviewed organization with guidance on the preparation of corrective action plans; the reviewed organization is held accountable for implementing corrective actions; and management is regularly informed about progress in implementing corrective actions. (DOE/EH-0326(EM.7)(II)(B))
- h. ES&H review personnel are adequately trained and qualified. (DOE/EH-0326(EM.7)(I)(E))
- i. The systems used for ES&H appraisals are periodically critiqued and modifications are made as necessary. (DOE/EH-0326(EM.7)(I)(H))
- j. Responsibilities and authorities for ES&H appraisals are clearly defined. (DOE 5482.1B(10)(c))

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- k. Status reports are provided at least quarterly to inform the appraising organization of the status of the corrective actions. (DOE 5482.1B(9)(b)(7))

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1.4.4 Lessons Learned/Root Cause Analysis

Performance Objective:

DOE and DOE contractor line management have implemented a root cause analysis program to ensure that the underlying reasons for ES&H deficiencies are identified and addressed, and a lessons learned program to ensure that those deficiencies are not repeated.

Criteria:

- a. There is a root cause analysis program that defines roles, responsibilities, and accountabilities, and provides for problem identification, significance evaluation, causal factor identification, and root cause determination. (DOE 5480.19, Attachment I(VI)(A))
- b. There is a formal procedure for conducting root cause analysis to ensure the thoroughness of each analysis and consistency between analyses, and which identifies appropriate root cause analysis methods and requires the documentation of decisions regarding corrective action. (DOE 5480.19, Attachment I(VI)(B))
- c. Personnel are made aware of the results of root cause analysis and lessons learned programs. (BMP)
- d. The root cause analysis program is integrated with the issues management program to ensure the implementation of corrective action. (DOE/EH-0326(EM.7)(II)(C))
- e. Personnel are trained in facility systems and operations and other major disciplines as appropriate, and to perform root cause and lessons learned analyses. (DOE 5480.19, Attachment I(VI)(C)(3))
- f. The lessons learned program is implemented to seek improvement opportunity for ES&H performance through formal procedures. (DOE/EH-0326(EM.7)(II)(D))
- g. The lessons learned program is integrated with the training programs. (BMP)
- h. The root cause analysis and lessons learned programs are periodically reviewed for effectiveness and are revised as necessary. (BMP)
- i. Trending analysis of findings is conducted periodically to identify underlying programmatic or management root causes. (DOE/EH-0326(EM.7)(II)(E))

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1.4.5 Performance Indicators

Performance Objective:

A program is in place to identify, measure, trend, and report ES&H performance indicators to provide early identification of potential ES&H and operational problems or changing ES&H conditions.

Criteria:

- a. DOE and the contractor have assigned responsibility for developing, implementing, and maintaining a formal program of performance indicators. (DOE 5480.26, Section 6.d.(1))
- b. Performance indicators are valid, consistently quantifiable, periodically reassessed, and changed as necessary to objectively evaluate ES&H performance against ES&H goals. (SEN-29-91, DOE 5480.26, Section 7.a.(3))
- c. Procedures are in place to implement the performance indicator program. (DOE 5480.19, DOE 5480.26, Section 6.e.(1))
- d. The performance indicator program is structured to acquire quality data. (DOE 5480.26, Section 6.e.(7))
- e. A system for trending and analyzing performance indicators is developed and implemented. (SEN-29-91, DOE 5480.26, Section 6.d.)
- f. A system is developed and implemented to ensure that quarterly performance indicator reports are prepared by the contractor and reviewed by DOE. (DOE-STD-1048-92, DOE 5480.26, Section 6.e.(3))
- g. The performance indicator program is integrated with the lessons learned and root cause analysis programs to ensure that explanations for trends in performance indicators are evaluated. (DOE-STD-1048-92, DOE 5480.26, Section 6.e.(4))
- h. A process is in place by which performance indicators are validated on a regular basis. (BMP)

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1.4.6 Contract Evaluation

Performance Objective:

A formal process is established by DOE to evaluate the performance of the site contractor with respect to contractual ES&H requirements for the purpose of determining compliance with the contract and any award fee or other incentive. This process is an adjunct to the formal ES&H oversight and appraisal program.

Criteria:

- a. There is a formal program to periodically evaluate contractor performance with respect to ES&H contractual requirements. (48 CFR 970.5204–54)
- b. A process has been developed to ensure that contract evaluation criteria are established, effectively communicated, and understood by all parties. (DOE 5480.19)
- c. Roles, responsibilities and accountabilities for the contract evaluation process have been defined and are understood. (DOE 5480.19, DOE 5480.26)
- d. There is a formal system to generate and modify the Performance Evaluation Plan for award fee determination or cost plus incentive fee contracts, and measurable ES&H criteria are included in the plan. (48 CFR 970.5204–54)
- e. The contractor conducts effective self-assessments for the purpose of award fee determination. (48 CFR 970.5204–54)
- f. The DOE Field Office has an effective program for systematically reviewing the contractor award fee or cost plus incentive fee contracts self-assessment and producing a performance rating based on the Performance Evaluation Plan. (DOE 5480.26)
- g. Procedures are in place to evaluate the contract evaluation program. (DOE 5480.19)

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1.4.7 Occurrence Reporting

Performance Objective:

A formal system is in place to investigate, report, and monitor trends in ES&H incidents and occurrences.

Criteria:

- a. The occurrence reporting program clearly defines roles and responsibilities and establishes methods for identifying, categorizing, trending, and analyzing site incidents. (DOE 5000.3B, BMP)
- b. The program provides direction on notification and reporting requirements and implementation of these requirements is timely. (DOE 5000.3B, BMP)
- c. DOE and contractor management receive adequate information to review incidents and ensure that appropriate corrective actions are taken. (DOE 5000.3B, BMP)
- d. The occurrence report follow-up process is integrated with the site's issues management system, and responsibilities and accountabilities for further investigation and/or corrective action are clearly defined. (BMP)
- e. When problems are identified as significant, the relationship between cause and effect and the root cause are determined and corrective or preventative measures are taken.
- f. Procedures are in place to implement the program and are periodically reviewed, updated, and properly distributed. (DOE 5000.3B, BMP)
- g. DOE and the contractor have established training programs for incident identification, reporting, and analysis. Employees know the proper procedures and reporting channels for handling incidents and occurrences. (DOE 5000.3B, BMP)

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Principle 2: Comprehensive requirements exist, are appropriate, and are executed.

Criterion 2-1: Requirements Management System

A requirements management system must be established that ensures that requirements are identified, transmitted, and implemented, and that they provide adequate protection to worker safety and health, the public, and the environment. The process should establish a control and decision process to ensure that:

- Applicable requirements are defined and accepted.
- Internal and external interfaces are managed.
- Required exemptions from requirements are formally identified and requested.
- Requirements flowdown into implementing documents.
- Commitments and requirements are tracked to completion.

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2.1.1 Program Structure

Performance Objective:

ES&H programs are in place to ensure that requirements are evaluated for applicability and implemented as necessary.

Criteria:

- a. The requirements management process is governed and implemented by formal, written, approved directives, policies, procedures, and instructions.
- b. Roles, responsibilities, and authorities of personnel are defined in writing and clearly understood.
- c. Internal and external interfaces have been formally defined to facilitate communication and coordination and to ensure proper and efficient communication, evaluation, and implementation of new or revised rules (Federal/State/local) and standards, and DOE Orders.
- d. Information systems have been established to track and report to management the implementation status of rules (Federal/State/local) and standards, and DOE Orders.
- e. Applicable ES&H requirements are evaluated and revised as necessary to reflect changes in facility operation or requirements.
- f. There is a system for identifying and characterizing source documents applicable to ES&H programs.
- g. Key performance indicators related to the implementation of safety requirements are monitored.

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2.1.2 Requirements Identification

Performance Objective:

Applicable rules (Federal/State/local) and standards, and DOE Orders as well as best management practices have been identified.

Criteria:

- a. New requirements are reviewed for applicability in a timely manner.
- b. Clear guidance has been established regarding the method for conducting requirements assessments.
- c. Standard review criteria and approval authorities have been established within the Operations Office to facilitate responses to contractor submittals in a timely and effective manner.
- d. The CSO has developed policy and instructions for meeting the responsibilities and performing the functions delineated in individual rules (Federal/State/local) and standards, and DOE Orders.
- e. A formal process has been implemented to ensure that requirements (including DOE HQ and facility directed requirements) and commitments are properly documented and recorded for subsequent follow-up action.

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2.1.3 Issues Management and Corrective Action

Performance Objective:

Processes have been established and implemented to resolve safety issues, noncompliances or deficiencies with rules (Federal/State/local) and standards, and DOE Orders.

Criteria:

- a. An issues management process has been established that identifies, screens, prioritizes, addresses, tracks, and trends ES&H issues. (DOE 5480.26).
- b. The organizational responsibilities for administering and implementing the ES&H issues management process are well defined. (DOE 5580.26, DOE 5482.1B).
- c. Administrative control procedures have been established for all aspects of the ES&H issues management process including the approval authority for interim corrective action, final corrective action, or exemption requests is clearly defined.
- d. Responsibilities and accountabilities for identifying ES&H issues and communicating such issues to appropriate levels of management are specified for all personnel.
- e. Staffing and resources are sufficient to ensure that the issues management process is effective in the timely identification, prioritization, correction, tracking, and trending of ES&H issues. (DOE 5480.1B).
- f. Appropriate staff are trained and qualified in the issues management process. Personnel performing issues management related activities are knowledgeable in the use of the system and understand the importance of accurately identifying issues and related actions. (10 CFR 830.120).
- g. The issues management process is integrated into the ES&H planning and budgeting and risk assessment processes.
- h. A formal corrective action process that defines ownership of identified deficiencies has been established to address ES&H issues according to their priority and available funding and resources.
- i. Compensatory measures are used to mitigate increased hazard risk while permanent corrective actions are being developed.
- j. Issue and corrective action schedules for implementation are developed and followed. Schedule alterations are approved by the responsible authority.
- k. Management periodically reviews the implementation status of issues and corrective actions and the corrective action item backlog to ensure that issues are being resolved in a timely manner.

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- l. The corrective action process provides controls for analyzing operating experience information and distributing lessons learned information to the appropriate personnel and organizations.
- m. A prioritization system is in place that ensures the timely resolution of issues based on identified risks.
- n. A process has been established for reviewing and verifying the adequacy of actions to correct identified noncompliances or deficiencies. Verification is initially conducted by the line organization and incorporates a graded approach.

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Criterion 2-2: Hazards Analysis and Authorization Basis

Hazards generally change as a facility cycles through the phases of design, construction, operation and maintenance, decommissioning and decontamination, and environmental restoration. It is thus important that hazards be continually analyzed to determine their relative safety significance and to ensure the facility is operated and maintained with the safety envelope established by the authorization basis. Management systems or processes must ensure that:

- Hazards/risks are analyzed and understood and are an integral part of work planning.
- Hazard analysis is the foundation for determining requirements.
- Appropriate hazard mitigation actions are identified and are in place
- The set of documents that make up the authorization basis are defined.
- Design and operational changes are evaluated for safety significance before they are implemented.
- Effective engineering controls for design and maintenance activities, configuration control, and issues management are in place.

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2.2.1 Implementation Planning

Performance Objective:

There are formal processes to assess the ES&H hazards/risks from all of the organization's activities, and to develop plans to mitigate risks and ensure that ES&H policy goals and objectives, including quality assurance, are attained.

Criteria:

- a. There is a periodic, systematic process for identifying, characterizing, and prioritizing of the ES&H risks associated with all of the organization's activities. (DOE 5481.1B, DOE 5482.1B, BMP)
- b. An enhanced work planning process is in place that includes, as a minimum, effective work planning, hazard analysis, and appropriate controls to prevent potential accident conditions and increase worker productivity.
- c. The ES&H hazard identification process considers normal operating conditions, shutdown and startup conditions, as well as the potential impacts associated with reasonably foreseeable or emergency situations. (DOE 5481.1B, BMP)
- d. The organization maintains up-to-date information on its key ES&H hazards/risks and has established priorities for the most serious hazards/risks. (BMP)
- e. ES&H performance data, internal and external failure costs, prevention costs, and other quality-related information are analyzed to establish trends that adversely impact quality and to identify opportunities for improving items or processes. (DOE 5700.6C)
- f. A formal project/program review and approval process, which includes a standard approach and criteria for evaluating ES&H issues, has been established. There are internal guidelines or criteria used to determine whether a particular ES&H risk would be deemed "acceptable" or "unacceptable." (DOE 5480.19, DOE 5481.1B, BMP)
- g. All new projects, programs, or operations are carefully reviewed to identify and address ES&H risks as early as possible. (DOE 5480.19, DOE 5481.1B, DOE 5400.1, BMP)
- h. Roles and responsibilities for ES&H hazard/risk assessments and project/program reviews are clearly defined and understood. (DOE 5480.1B)
- i. Personnel who conduct ES&H hazard/risk assessments and project/program reviews have the appropriate experience and training. (BMP)

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- j. The organization has assessed and determined its need for staff and budget resources to mitigate ES&H risks and achieve its ES&H performance goals. (DOE 5480.1B, DOE 5100.4, DOE 5400.1, BMP)
- k. The organization has assessed and determined its need for pollution control technologies and other technical equipment to mitigate ES&H risks and achieve its ES&H performance goals. (DOE 5480.1B, DOE 5400.1, BMP)
- l. The organization has developed formal plans, including any plans required by regulation or Departmental Orders, that identify the actions, resources, and schedule needed to mitigate identified risks and achieve ES&H goals and objectives. (DOE 5480.1B, DOE 5400.1, BMP)

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2.2.2 Configuration Management

Performance Objective:

Configuration management controls have been implemented to ensure adherence to all applicable ES&H requirements.

Criteria:

- a. The configuration management process ensures that site activities are conducted within the safety envelope defined by the authorization basis.
- b. ES&H requirements for activities that affect safety, including design changes, operations, maintenance, system drawings, and surveillance tests are appropriately reviewed and implemented.
- c. The configuration management process, including the interfaces between the various participating design organizations, is clearly defined in written procedures and instructions.
- d. Design control measures provide for verification of the adequacy of design through independent reviews, alternative calculations, or testing.
- e. Design changes are subject to design control measures commensurate with those applied to the original design.

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2.2.3 Authorization Basis Documents

Performance Objective:

The authorization basis for the facility is clearly defined, and analysis, conclusions and requirements are appropriate.

Criteria:

- a. The set of documents that constitute the authorization basis is defined and maintained within a document control system.
- b. Authorization basis documents do not contain conflicting requirements.
- c. Safety Analysis Reports, Basis for Interim Operation, and Implementation Plans are prepared and updated for each nuclear facility and nuclear operation and establish the adequacy of the safety basis of the facility in accordance with the provisions of DOE 5480.23 and DOE-STD-3011-94.
- d. Safety Analysis Reports and revisions thereto for all nuclear facilities and operations are reviewed and approved. The Secretarial Officer has issued a Safety Evaluation Report that documents the bases upon which the approvals have been made. (The Safety Analysis Report, Safety Evaluation Report, the Technical Safety Requirements document, and any facility-specific commitments made in order to comply with DOE nuclear safety Orders or policies constitute the basis for DOE authorization of the contractor to operate the facility.)
- e. Permanent exemptions (if applicable) are formally issued and are based on the assurance that, given proper control, worker and public health and safety will not be affected by the consequences of a postulated design basis accident (DBA). Permanent exemptions are granted by the Secretarial Officer only after obtaining the concurrences of the Office of Environment, Safety and Health and the Office of Nuclear Energy. (DOE 5480.23)
- f. Permanent exemptions to the requirements of DOE 5480.23 for Hazard Category 1 and 2 facilities are granted by the Secretary after obtaining the concurrence of the Office of Environment, Safety and Health and the Office of Nuclear Energy.
- g. Temporary exemptions granted to the requirements of DOE 5480.23 and 5480.22 for any activity do not exceed one year in duration.
- h. TSRs have been prepared and approved for the facility in accordance with DOE 5480.22.
- i. The facility has a comprehensive Hazards Analysis to assess the risks to existing protection capabilities from fires, process chemicals, explosives, and radioactivity.

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- j. For those facilities that do not have authorization basis documents (e.g., non-nuclear facilities) the health and safety plans should serve as the safety basis. (BMP)

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2.2.4 Reviews and Updates

Performance Objective:

The authorization basis documents are maintained current and accurate.

Criteria:

- a. The TSRs and facility Safety Analysis Report are reviewed at least annually to ensure that they reflect the facility as it exists.
- b. The CSO has issued a directive delineating the flow of TSR or TSR change submittals from the contractor through the line as well as review, approval, and concurrence responsibilities.
- c. DOE Headquarters and/or DOE line management provide guidance and assistance to field organizations in applying the graded approach for the facility, and the performance of safety reviews, appraisals, etc., to ensure contractor compliance with the provisions of DOE 5480.23 and DOE-STD-3009.94.
- d. DOE Headquarters and/or DOE line management conduct appraisals to ensure contractor compliance with DOE 5480.22 and DOE 5480.23.
- e. Documents that define the current configuration of the plant are baselined and maintained within a document control system.
- f. Procedures prohibit facility configuration changes by unauthorized persons, and describe the process for obtaining approval of such changes.
- g. A program is established that identifies the need for changes to authorization basis documents as well as procedures necessary to implement these changes.

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2.2.5 Unreviewed Safety Questions

Performance Objective:

A program to identify and address unreviewed safety questions (USQ) is maintained.

Criteria:

- a. Proposed changes to the facility that directly or indirectly affect the facility authorization basis, and therefore its safety, are reviewed for USQs.
- b. The USQ process is implemented through formal, approved procedures. The process includes management review and resolution of USQs.
- c. The USQ process is integrated into all technical aspects of the contractor organization responsible for design, engineering, maintenance, inspection, operations, and assessment of the nuclear facility or activity.
- d. All individuals involved in design, engineering, maintenance, inspection, operations, and assessment of the nuclear facility or activity are familiar with the authorization basis documents and requirements of DOE 5480.21 and are sufficiently knowledgeable to identify potential USQs while carrying out their normal assigned responsibilities.
- e. Individuals responsible for identifying USQs are provided sufficient information on proposed changes to enable a thorough evaluation for potential effects on the authorization basis.
- f. Mechanisms are established to obtain authorization basis information easily.
- g. The CSO actively monitors the USQ identification, review, and decision making process of the DOE Field Office and contractor.

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2.2.6 Operation Within Safety Envelope

Performance Objective:

The facility is operated and maintained within the bounds of the safety envelope as defined by the authorization basis.

Criteria:

- a. Commitments made in the approved Safety Analysis Report and related safety documents are carried out by the DOE and contractors for the nuclear facilities and nuclear operations.
- b. The facility is operated in accordance with the TSRs as approved by the CSO.
- c. Operators are knowledgeable of TSR requirements and limits.
- d. Requests for Approval (RFAs), including Compliance Schedule Approvals, Short-Term Compliance Statements, Equivalency Determinations, and Exemption Requests, are submitted and approved, as required, for identified noncompliances with DOE Orders.
- e. Compensatory measures identified in RFAs are effectively implemented.

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2.2.7 Structures, Systems, and Components

Performance Objective:

Safety structures, systems, and components (SSC) are identified, operated, and maintained consistent with the nuclear, radiological, and environmental consequences of failure as defined by the authorization basis.

Criteria:

- a. Procedures are in place for characterizing all SSC, and that characterization is consistent with the nuclear, radiological, and environmental consequences of failure as defined by the authorization basis.
- b. The safety SSCs are maintained according to designated classifications in DOE 3440.4A.
- c. The operational reliability of SSC is maintained at levels consistent with their safety classification.
- d. The operability of SSC is demonstrated continually through calibration, testing, and surveillance for all safety functions relied on to prevent or mitigate design basis accidents.
- e. Safety structures are designed according to DOE 6430.1A.
- f. Engineering organizations have ready access to, and control of, design basis information. Files are in good order, and the design basis information is kept current and controlled.

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Criterion 2-3: Facility-Specific Procedures and Implementation

Line managers are responsible for establishing and implementing requirements that are commensurate with hazards throughout the life cycle of the facility. Line managers must ensure that:

- Requirements are affectively translated into site- and facility-specific policies, programs, and procedures.
- Facilities establish and implement a procedure control program to implement ES&H requirements.
- Work activities are controlled and adequately consider all potential ES&H hazards.

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2.3.1 Requirements Implementation

Performance Objective:

Requirements are effectively translated into site and facility-specific policies, programs, and procedures.

Criteria:

- a. Site and facility-specific implementation plans, including compliance schedule agreements and exemptions requests, where appropriate, are developed.
- b. Field office and Headquarters' review of implementation plans, including compliance schedule agreements and exemptions are thorough and timely.
- c. Line Organization requirements for ES&H are based on appropriate hazards analyses.
- d. The site is in compliance with applicable Federal and state statutes, Department policy and requirements, and applicable industry safety standards.
- e. Programs and procedures that implement requirements are uniformly accepted and implemented.

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2.3.2 Procedure Program

Performance Objective:

The facility has established and implemented a program for development, approval, use, and control of procedures to implement ES&H policies.

Criteria:

- a. There is a process for ensuring that ES&H requirements and good management practices are incorporated into standard operating procedures (SOPs) and that procedures exist for all ES&H activities that have significant potential risk. (10 CFR 830.120, ANSI/ASQC E4, DOE 5480.19)
- b. Facility policies clearly define the need for using and complying with ES&H-related procedures. All personnel understand the requirement, and it is strictly enforced by management. (10 CFR 830.120)
- c. Administrative procedures or writer's guides clearly define the accepted form and content of ES&H-related procedures. (DOE 5480.19)
- d. Requirements for preparing, reviewing, verifying, and validating ES&H-related procedures are formalized in procedure program documentation. (DOE 5480.19)
- e. New and revised ES&H-related procedures are reviewed and approved by management and appropriate disciplines (e.g., fire protection, radiological protection, occupational safety, criticality safety) before use, as required by the procedure program. (DOE 5480.19)
- f. The review and approval process for ES&H-related procedure changes is documented.(DOE 5480.19)
- g. Temporary ES&H-related procedure changes are reviewed and approved before use, users are made aware of the temporary changes, and the changes are incorporated as procedure revisions as appropriate.(DOE 5480.19)
- h. Revisions of ES&H-related procedures receive the same depth of review and level of approval as new procedures. (DOE 5480.19)
- i. New and revised ES&H-related procedures are reviewed before issuance and at specified intervals to ensure that the information and instructions are technically accurate and that appropriate human factors have been considered. (DOE 5480.19)
- j. During the review process, ES&H-related procedures are compared to source documents to verify the accuracy of their contents and are subjected to an unreviewed safety question determination as required. (DOE 5480.19)
- k. New ES&H-related procedures are validated by walkthroughs of the facility or by operation on a

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facility-specific simulator. (DOE 5480.19)

- l. Controlled copies of all ES&H-related procedures are maintained, and working copies of controlled procedures are available for use by personnel performing work. Before they are used uncontrolled working copies are verified to be current by comparison with controlled procedures. (DOE 5480.19)
- m. A system is in place to ensure that outdated copies of ES&H-related procedures are not used by mistake and that working copies are replaced as required. (DOE 5480.19)
- n. Requirements for using ES&H-related procedures are documented and understood by personnel. Procedure on how to use requirements provide directions on when procedures are to be used as general guidance or followed step by step, and when sign-off for each step is required. Requirements also stipulate when "in-hand" use of a procedure is required and when "skill-of-the-craft" knowledge of a procedure is acceptable. (DOE 5480.19)

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2.3.3 Work Processes

Performance Objective:

There is a system to ensure that work activities are planned and conducted under suitably controlled conditions and in consideration of all potential ES&H hazards.

Criteria:

- a. There is a work-planning system that ensures that ES&H requirements are evaluated and communicated to workers. (10 CFR 830.120, BMP)
- b. ES&H-related work activities are conducted according to established technical standards and administrative controls. (10 CFR 830.120)
- c. ES&H-related work is performed under controlled conditions using approved instructions or procedures. (10 CFR 830.120)
- d. Personnel performing ES&H-related work have the requisite experience, skills, and training to perform their activities safely and effectively. (10 CFR 830.120)
- e. Equipment used in ES&H-related process monitoring or data collection is calibrated and controlled. (10 CFR 830.120)

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2.3.4 Procurement and Material Control

Performance Objective:

Measures have been implemented to ensure that purchased items and services conform to stated ES&H requirements, codes, and standards, and that they perform as expected.

Criteria:

- a. Procurement documents clearly specify ES&H requirements; required tests, inspections, and acceptance criteria; and quality assurance program requirements. (10 CFR 830.120)
- b. Facility acceptance of procured items or services is based on source verification, receipt inspection, certification of conformance, post installation testing, or any combination thereof, which provides objective evidence as to the conformance of the item to ES&H-related procurement requirements. (10 CFR 830.120, ANSI/ASME NQA 1)
- c. The procurement system contains effective provisions for prohibiting the use of restricted materials. (10 CFR 830.120)
- d. Procured materials, where applicable, include Material Safety Data Sheets which specify material characteristics, constituents, hazards, and warnings, and provide other relevant information. (BMP)
- e. Procurement programs to detect counterfeit products should include, the involvement of engineering staff in the procurement process, effective source inspection, receipt inspection, and testing programs. (NRC GL89-02, IEB87-02)

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Criterion 2-4: Compliance Assessment Programs

Line management must establish and implement effective methodologies to monitor, review, and evaluate adherence to all applicable Federal and State statutes, Department requirements, and industry standards for safety and to achieve timely correction where warranted, by ensuring that:

- Assessments are conducted to measure ES&H quality and process effectiveness and promote improvement.
- Compliance deviations such as compliance schedule agreements, exemption requests, and compensatory measures are formally reviewed and adequately controlled.
- A sitewide self-assessment program has been established to identify and characterize ES&H issues at all organizational levels.

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2.4.1 Internal Assessment by Line Organizations

Performance Objective:

Planned and periodic internal assessments by line organizations are conducted by a sub-organization with sufficient authority and freedom from the line to measure ES&H quality and process effectiveness and promote improvement.

Criteria:

- a. Personnel performing internal assessments by line organizations monitor work performance, identify abnormal performance and precursors of potential problems, identify opportunities for improvement, report results to a level of management having the authority to effect corrective action, and verify the satisfactory resolution of problems. (DOE 5700.6C)
- b. Personnel performing internal assessments by line organizations are technically knowledgeable, focus on improving the quality of the processes, and do not have direct responsibilities in the area they are assessing. (10 CFR 830.120)
- c. Internal assessments by line organizations are conducted using criteria that describe acceptable work performance and promote improvement. (DOE 5700.6C)
- d. The scheduling of assessments and allocation of resources are contained within a specific plan, and are based on the status, risk, and complexity of the item or process being assessed and are intentionally flexible to provide for additional attention to areas of questionable performance. (DOE 5700.6C)
- e. Assessment results are tracked and resolved by management personnel having responsibility in the area assessed, and follow-up responses (e.g., actions to correct the deficiency, identify the cause, prevent recurrence, identify lessons learned, or make needed improvements) are initiated. (DOE 5700.6C)
- f. The internal assessments by line organizations program is clearly defined in writing. (ANSI/ASQC E4)
- g. Management periodically reviews the adequacy of the program. (BMP)
- h. Internal assessments by line organizations are planned, structured, and documented. (10 CFR 830.120)
- i. Internal assessments by line organizations are conducted in accordance with written guidelines or criteria. (DOE 5700.6C)

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- j. Findings of internal assessments by line organizations are communicated to management and resolved in a timely and effective manner. (DOE 5700.6C)
- k. Significant issues identified during internal assessments by line organizations are communicated to the various operating organizations through a formal lessons learned or operating experience program. (DOE 5700.6C)

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2.4.2 Self-Assessment Program

Performance Objective:

A sitewide self-assessment program has been established to identify and characterize ES&H issues at all organizational levels.

Criteria:

- a. Line managers have implemented formal, written programs for ES&H self-assessments and oversight appraisals. (DOE/EH-0326(EM.7)(1)(a), DOE 5482.1B(9))
- b. Vertical and horizontal integration of assessment and appraisal programs within the organization ensures a comprehensive evaluation that minimizes redundancy and maximizes efficiency. (BMP)
- c. Line management's self-assessment and internal assessments by line organizations programs are coordinated with, but not replaced by, Departmental evaluations. (BMP)
- d. Assessment and appraisal programs are designed to encourage candid, open reporting of concerns and deficiencies without fear of reprisal. (BMP)
- e. Responsibilities and authorities for self-assessment activities are clearly defined. (DOE/EH-0326(EM.7)(I)(B))
- f. The frequency of self-assessments and appraisals is consistent with the programs' goals and inherent risks. (DOE/EH-0326(EM.7)(I)(C), DOE 5482.1B(9))
- g. Functional appraisals of specific issues are conducted to reduce the organization's long-term ES&H liabilities. (DOE/EH-0326(EM.7)(I)(D))
- h. Audits and appraisals are conducted by professionals who are trained and qualified. (DOE/EH-0326(EM.7)(I)(E))
- i. Audits and appraisals are conducted using formal, written guidance, and the results are documented. (DOE/EH-0326(EM.7)(I)(F))
- j. Self-assessment program implementation is addressed in budget planning and budget requests. (DOE/EH-0326(EM.7)(I)(G), DOE 5482.1B(10)(I))
- k. The systems used for ES&H program evaluations are periodically critiqued and modifications are made as necessary. (DOE/EH-0326(EM.7)(I)(H))
- l. The effectiveness of the self-assessment program is periodically evaluated and changes to the program are made on the basis of these evaluations. (BMP)

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2.4.3 Process Review

Performance Objective:

Rules, DOE Orders and standards, noncompliances, compliance schedule agreements, exemption requests, and compensatory measures are formally reviewed and adequately controlled.

Criteria:

- a. A schedule for conducting assessments has been developed and implemented.
- b. Assessment activities ensure that DOE Orders, rules, and regulations are identified, evaluated, and included in documented policies, programs, and procedures.
- c. Assessment activities ensure that DOE Orders, rules, and regulations have been incorporated into implementing procedures and are adhered to during the performance of work.
- d. Information systems have been established to track, trend, and determine the root causes of deficiencies, provide lessons learned, and report to management the implementation status of DOE Orders, rules, and regulations.
- e. Awards or sanctions are imposed as appropriate to encourage adherence to ES&H requirements at all levels.
- f. Management direction and overview of facility conditions, activities, and work practices ensures acceptance, understanding, and implementation of requirements.
- g. Line managers evaluate the ES&H compliance status of activities under their responsibility and ensure that corrective action plans are developed and implemented to address any deficiencies. (DOE 5480.19, DOE 5481.1B, DOE 5700.6C)

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Principle 3: Competence is Commensurate with Responsibilities.

Criterion 3-1: Staffing and Qualifications

The organization supports effective ES&H operations by ensuring that staffing levels are appropriate and that personnel have the appropriate education, experience, or training in their assigned duties. The organization has in place the means to:

- Identify the levels of experience, education, and training required and necessary for each management and technical position.
- Assure that contractors and subcontractors employed on site are adequately trained and qualified on job tasks, hazards, and DOE and contractor safety policies and requirements.
- Provide managers and supervisors with sufficient authority, staffing, and support to implement assigned responsibilities, analyses, and decisions.
- Determine the appropriate levels of staffing, experience, and training for each function including consideration of responsibilities, activities, hazards, and schedules.

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3.1.1 ES&H Staffing Levels

Performance Objective:

ES&H staff resources are sufficient to effectively develop and implement the organization's programs and achieve its performance goals.

Criteria:

- a. A system is in place for identifying short- and long-term ES&H staffing requirements within both the independent ES&H organization and the line organizations.
- b. The organization provides career opportunities and advancement for ES&H staff either within the program or in other DOE programs and facilities.
- c. Staffing levels are sufficient to execute ES&H responsibilities within the ES&H and line organizations.
- d. Staffing for ES&H activities is provided in a timely manner.
- e. There is a system for employing support contractors or subcontractors as necessary to ensure that ES&H work is performed in a timely manner by qualified professionals.
- f. Recruiting policies and strategies to attract and retain high level of management and technical experience include, where appropriate, the use of bonuses, special hiring authority, and competitive wages and benefit packages.
- g. Line management has supported ES&H programs through sufficient allocation of resources. (DOE 5480.1B, DOE 5100.4, DOE 5400.1, BMP)

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3.1.2 ES&H Qualifications

Performance Objective:

Personnel with ES&H responsibilities have the relevant background and qualifications to carry out their responsibilities.

Criteria:

- a. Workers have the technical and physical capability to recognize, respond to, and control workplace risks, including those associated with physical, radiological, chemical, and electrical hazards.
- b. Work assignments are made with appropriate consideration of hazards, necessary staffing levels, and the experience, training, and qualification of individuals.
- c. Personnel with ES&H responsibilities receive all training identified as necessary for their positions.
- d. Subcontractors employed on-site are adequately trained and qualified on job tasks, hazards, and DOE and contractor safety policies and requirements.

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Criterion 3-2: Technical Competence and Knowledge of Hazards

Workers and managers are technically competent to perform their jobs and are appropriately educated and knowledgeable of the hazards associated with site operations. Line managers must ensure that:

- Workers have the technical capability to recognize and respond appropriately to work place hazards.
- Sufficient staff are provided with the necessary levels of education, training, and experience.
- Trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs, learning is taking place, and routine examinations or evaluations are given to measure individual technical competence and knowledge of hazards.

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3.2.1 Trainee Examinations and Evaluations

Performance Objective:

Individual trainees are examined or evaluated regularly and consistently to ensure that learning is taking place and that trainees are acquiring the knowledge and skills required to work efficiently and safely at their jobs.

Criteria:

- a. Trainees are evaluated regularly using written, oral, or performance examinations and quizzes.
- b. Training is conducted prior to the implementation of significant facility or system modifications, revisions to procedures, or the introduction of new processing and hazards.
- c. The control of written and oral examinations is changed at intervals sufficient to prevent compromise.
- d. Development, approval, security, administration, and maintenance of written and oral examinations and performance evaluations are formally controlled.
- e. Remedial training and reevaluation are provided when examination or performance standards are not met.
- f. A structured method has been established for evaluation of the safety hazards and the necessary skills, experience, and training for various positions and activities.
- g. The levels of experience, education, and training necessary for each management and technical position have been defined.

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3.2.2 Training Program Evaluation

Performance Objective:

A systematic evaluation of training effectiveness and its relation to on-the-job performance is used to ensure that the training program conveys all required skills and knowledge.

Criteria:

- a. A comprehensive evaluation of individual training programs is conducted periodically to identify program strengths and weaknesses.
- b. The Instructional skills and technical competence of instructors are evaluated regularly.
- c. Feedback on trainee performance during training is used to evaluate and refine the training program, as is feedback from former trainees and their supervisors.
- d. Change actions (e.g., procedure changes, equipment changes) are monitored and evaluated for their applicability to initial and continuing training programs and are incorporated in a timely manner. Changes in job scope are evaluated to determine the need for revision of initial and continuing training programs.
- e. Changes to initial and continuing training are systematically implemented, tracked, and evaluated for their effectiveness in correcting training deficiencies and performance problems.
- f. Training materials are based on the results of training program evaluations and are kept current.
- g. Training facilities are evaluated to determine their effect on the training process.

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Criterion 3-3: Worker Participation and Empowerment

Employee concerns are adequately addressed through an established mechanism. Line management promotes employee involvement to assure safe task accomplishment. Appropriate systems are in place to provide program incentives, ownership, accountability, and opportunities to improve facility performance.

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3.3.1 Employee Concerns Program

Performance Objective:

There is a program for identifying, reporting, and resolving employee ES&H concerns.

Criteria:

- a. Employee and union ES&H concerns are solicited and addressed. Both the concerns and responses are documented. (DOE 5480.29)
- b. A formal system is in place to allow personnel to communicate ES&H concerns anonymously—thus without fear of retribution—to upper levels of management for resolution. (DOE 5480.29)
- c. Employees are aware of the ES&H concerns program and are informed of their rights, protections, and obligations. Employees know the proper procedure and reporting channels for filing concerns. (DOE 5480.29)
- d. Employees are encouraged to identify ES&H issues and participate in resolving them. (BMP)
- e. Management responds appropriately to ES&H concerns and actively promotes the employee concerns program through formal and informal communications. (DOE 5480.29)
- f. The program includes methods to evaluate, prioritize, track, trend, and report ES&H concerns. (DOE 5480.29, DOE 5484.1, DOE 5639.3)
- g. The program is documented and periodically assessed, and improvements are made necessary. (DOE 5480.29)
- h. Management encourages all personnel to identify ES&H problems and suggest improvements, and has granted them the freedom and authority to stop work until effective corrective action is taken. (DOE 5700.6C)
- i. Management encourages openness and is receptive to input on ES&H issues from all employees, as well as from the public at large. (BMP)

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3.3.2 Employee Involvement

Performance Objective:

A system is in place that encourages proactive worker involvement in planning, hazard identification, and hazard mitigation.

Criteria:

- a. There is a process for involving workers in pre-job analysis and planning wherein their knowledge of hazards and their recommendations for safe and efficient task accomplishment are utilized.(BMP)
- b. Workers are empowered to take appropriate action in the face of hazards encountered during normal and emergency conditions. (DOE 5480.29)
- c. Management periodically communicates the need and desire for employee participation in safety through bulletins and publications, as well as directives, to middle and first line supervisors.(BMP)

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3.3.3 Rewards and Recognition

Performance Objective:

Systems are in place to recognize and appropriately reward employees for positive safety performance.

Criteria:

- a. Incentives programs exist which recognize and reward employees for safe performance. (BMP)
- b. The rewards and recognition program is visible to the "rank and file." Notable successes are broadly communicated.(BMP)
- c. Safety infractions are thoroughly critiqued and appropriately addressed by management. (BMP)

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Criterion 3-4: Training Programs

Line management will ensure that personnel receive established facility and program-specific ES&H training commensurate with their responsibilities and job performance requirements. Workers must have the technical skills, competence, and physical capability to recognize, respond appropriately to, and control workplace hazards, including physical, radiological, chemical, and electrical hazards. A training program that meets these needs would:

- Identify, document, and reflect the job performance requirements.
- Identify and promote the knowledge and skills needed to fulfill the job performance requirements.
- Provide for training in the most suitable setting, with state-of-the-art equipment and processes, and in accordance with approved lesson plans and other training guides.

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3.4.1 ES&H Staff Development/Retention

Performance Objective:

There are effective mechanisms for developing staff with key ES&H responsibilities.

Criteria:

- a. ES&H staff are encouraged to acquire management and professional skills in order to increase their supervisory and management potential.
- b. Cross-functional training to maintain and expand staff capabilities is available and encouraged.
- c. Workers and unions actively participate in the identification of necessary skills, experience, and training for various positions and activities essential to safety.

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3.4.2 Determination of Training Program Content

Performance Objective:

Job performance requirements are identified and documented, and are reflected in the content of the training program.

Criteria:

- a. Job performance requirements are identified by systematic analysis, and the results of that analysis are documented and used in developing the training program.
- b. The current facility Safety Analysis Report and all applicable procedures, technical and professional references, DOE Orders and guidelines, and data on industry operating experience are consulted as appropriate to establish initial and continuing training.
- c. Training for technical staff personnel is based on an assessment of position duties and responsibilities.

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3.4.3 Design and Development of Training Programs

Performance Objective:

Training program materials identify and promote the knowledge and skills needed by trainees to perform tasks associated with the positions for which they are being trained, or to maintain or improve performance of those tasks.

Criteria:

- a. Learning objectives are derived from tasks selected for training, describe the knowledge and skills required for successful job performance, and are specified in observable and measurable terms.
- b. Lesson plans and other training materials used in the various settings and types of training (e.g., classroom, laboratory, simulator, individualized instruction, on-the-job training) are accurate, support the learning objectives, and promote the effective delivery of training.
- c. Review, approval, and control requirements are established and applied to all training materials.
- d. A continuing training program maintains or improves the knowledge and skills of job incumbents.

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3.4.4 Conduct of Training

Performance Objective:

Training is conducted in the setting most suitable for the content. Training is consistently and effectively presented using approved lesson plans and other training guides.

Criteria:

- a. Training is conducted using current, approved training materials.
- b. Training replicates actual job conditions to the extent practical, and allows for direct participation by the trainees.
- c. On-the-job training is conducted and evaluated by designated personnel who have been instructed in program standards and methods.
- d. Laboratory and simulator training, where applicable, is effectively and consistently presented.